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005947

DATA EVALUATION RECORD

Study Type: Acute Inhalation
Toxicity

TOX Chem. Nos.: 652B and
652BB

Accession Number: 401239-04

MRID No.:

Test Material: Formulation: RAID FUMIGATOR-I

Synonyms:

Study Number(s): FDRL #9130 and Laboratory Project Id. 9133

Sponsor: S.C. Johnson, Racine, WI

Testing Facility: Food and Drug Research Laboratories

Title of Report: Acute Inhalation Toxicity Study of
6083D94-2 (X112AC) in Sprague-Dawley
Rats

Author: B. Busch

Report Issued: September 2, 1986

Conclusions:

LC₅₀ > 8.4 mg/L for 4 hours (HDT); one death at this
level. Toxicity Category IV.

Classification: CORE-MINIMUM.

Special Review Criteria (40 CFR 154.7): N/A.

Review

Male and female Sprague-Dawley rats (five males and five females) were exposed to atmospheres containing the aerosolized product RAID (identified as product 6083D94-2) in a specialized 128 L acrylic (plexiglass) chamber for 4 hours. The test material was placed in a separate chamber and activated by placing in contact with water, which resulted in an exothermic reaction which in turn aerosolized the active ingredients permethrin and sumithrin. New batches of the test article were said to be activated every 13 minutes. The aerosol cloud was

drawn into the exposure chamber. The mechanism facilitating the transfer of the atmosphere containing the pesticides from one chamber to another was not fully described. It is assumed that as the exothermic reaction generated the atmosphere the pressure forced some of the atmosphere into the next chamber containing the test animals. The chamber was such that the test atmosphere entered from the top of the chamber and was drawn to the bottom for exhaust with the aid of a transvector jet assembly. It was stated (but not fully described as to how) that the "rate of delivery of the aerosol cloud into the exposure chamber was adjusted so that the proper gravimetric concentration of 6083D94-2 (X112AC) was established." It appears (based on the illustration of the apparatus) that a simple "quick disconnect assembly" or stopcock was used to regulate the flow between the generating and exposure chambers.

The atmospheric concentration was determined as "nominal concentration" (total amount of test material used divided by the number of liters of air passing through the chamber). Using this method, the atmospheric concentration (nominal) was 16.7 mg/L. The atmospheric concentration was also determined gravimetrically by drawing a known volume of chamber air through a preweighted glass fiber filter (Gelman Type A/E 99.7% efficient at "0.3 m"). Using this method, the atmospheric concentration based on weight of the sample on the filter paper was 2.6 ± 0.5 mg/L. The sample on the filter paper was also analyzed by chemical analysis for permethrin using gas chromatography. Sumithrin was apparently not determined. The recoveries of permethrin were "used to determine by back calculation the total amount of test article on each filter" and the average concentration determined. Consequently, it was determined that the atmospheric concentration was 8.4 ± 1.3 mg/L.

The particle size of the atmosphere was determined by multijet cascade impactor, and the mass mean aerodynamic diameter was 3.2 μ m, with a geometric standard deviation of 1.8. It was estimated that 98.7% of the particles were < 12 μ m.

Only one male rat died. The symptoms in the exposed rats included respiratory irregularity (labored breathing and/or increased respiration), decreased activity, and nasal discharge. Salivation was noted in the surviving rats following exposure. One female exhibited lacrimation. The effects of exposure were dissipated by day 3 but some hair loss and skin sores (not definitely related to exposure) were evident from day 4 to day 9. Possible transient body weight loss in a few females was noted.

Necropsy revealed that the rat that died exhibited discoloration (described as bright red) and "prominent vascularization of the brain tissue."

Conclusions:

This study is CORE-MINIMUM. The LC₅₀ is established as > 8.4 mg/L based on chemical analysis of the trapped atmosphere. At this level a single male rat died but all others survived the transient signs of intoxication. The study report does not describe the response in the rat that died so that a more precise cause of death could be determined. Toxicity Category IV.